```
     FILE 'CAPLUS' ENTERED AT 10:19:02 ON 30 APR 2001
L1          1148 S TL(3A)GAMMA OR (T OR THERMOMY?)(W)LANUGIN?
L2             1 S L1 AND MOTOR PROTEIN
L3         46414 S TL OR (T OR THERMOMY?)(W)LANUGIN?
L4             1 S L3 AND MOTOR PROTEIN
L5             1 S L2 OR L4

L5   ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2001 ACS
ACCESSION NUMBER:         1999:487304  CAPLUS
DOCUMENT NUMBER:          131:112405
TITLE:                    Identification and expression of the microtubule
                          motor protein kinesin
                          TL-.gamma.
INVENTOR(S):              Sakowicz, Roman; Goldstein, Lawrence S. B.
PATENT ASSIGNEE(S):       The Regents of the University of California, USA
SOURCE:                   PCT Int. Appl., 75 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.        KIND  DATE           APPLICATION NO.  DATE
     ---------------   ----  --------       ---------------  --------
     WO 9937659         A1   19990729       WO 1999-US1355   19990122
         W:  AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,
             DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN,
             IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD,
             MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
             SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ,
             BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,
             ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
             CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
     AU 9924648         A1   19990809       AU 1999-24648    19990122
PRIORITY APPLN. INFO.:                     US 1998-72361    A2 19980123
                                           WO 1999-US1355   W  19990122
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AB The invention concerns the isolation of a nucleic acid sequence from **Thermomyces lanuginosus** that encodes the microtubule **motor protein** kinesin **TL-.gamma.** with the following properties: the protein's activity includes plus end-directed microtubule motor activity; the protein has a tail domain that has greater than 60% amino acid sequence identity to a **TL-.gamma.** tail domain as measured using a sequence comparison algorithm; the protein specifically binds to polyclonal antibodies to **TL-.gamma.**. The invention also concerns antibodies to **TL-.gamma.**, methods for screening biol. active **TL-.**

gamma., and kits for screening. Using PCR and degenerate primers, **TL-.gamma**. was amplified from **Thermomyces lanuginosus** genomic DNA. The nucleic acid sequence was then used as a probe to isolate a longer **TL-.gamma**. sequence. Recombinant **TL-.gamma**. was prepd. in order to test its activity in a microtubule gliding assay. The pET23-**TL-.gamma**. expression vector was constructed and expressed in E. coli. The kinesin **TL-.gamma**. protein was isolated, it was very stable retaining 100% activity up to 40.degree. after incubation for 15 min as measured using a microtubule dependent ATPase assay. Freshly prepd. protein was used to assay microtubule gliding activity. Taxol stabilized microtubule seeds brightly labeled with rhodamine were prepd. by incubating a 1:1 ratio of rhodamine labeled bovine brain tubulin; also unlabeled bovine brain tubulin was incorporated into the assay. Flow chambers prepd. were preadsorbed with **TL-.gamma**. **motor protein**. A microtubule/ATP mix contg. polarity marked microtubules, taxol, MgATP and an oxygen scavenging system was then flowed into the chamber. Movement of microtubules was monitored at room temp. on a fluorescence microscope fitted with oil immersion objective and a CCD. For **TL-.gamma**. activity measurement, recombinant **TL-.gamma**. protein was attached to a glass coverslip using non-specific adhesion, and gliding of polarity marked microtubules contg. brightly fluorescent rhodamine labeled seeds near their minus ends was recorded by time-lapse digital fluorescence microscopy. Microtubules moved with brightly fluorescent seeds leading, indicating that the immobilized **TL-.gamma**. protein was moving toward microtubule plus ends. No movement was obsd. in the absence of **TL-.gamma**.. This expt. demonstrates that **TL-.gamma**. has plus-ended microtubule motor activity.

REFERENCE COUNT: 6
REFERENCE(S):
(1) Blangy; J Biol Chem 1997, V272(31), P19418 CAPLUS
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(4) O'Connell; J Cell Biology 1993, V120(1), P153 CAPLUS
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ALL CITATIONS AVAILABLE IN THE RE FORMAT

(FILE 'CAPLUS' ENTERED AT 10:19:02 ON 30 APR 2001)
L6 2 S L3 AND (MOTOR(S)PROTEIN)
L7 1 S L6 NOT L5

L7 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 2000:11856 CAPLUS
DOCUMENT NUMBER: 132:217820
TITLE: Cloning and expression of kinesins from the thermophilic fungus **Thermomyces lanuginosus**
AUTHOR(S): Sakowicz, Roman; Farlow, Sam; Goldstein, Lawrence S. B.
CORPORATE SOURCE: Howard Hughes Medical Institute, Department of Cellular and Molecular Medicine, Department of Pharmacology, School of Medicine, University of California, La Jolla, CA, 92093-0683, USA
SOURCE: Protein Sci. (1999), 8(12), 2705-2710
CODEN: PRCIEI; ISSN: 0961-8368
PUBLISHER: Cambridge University Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The motor domain regions of three novel members of the kinesin superfamily TLKIF1, TLKIFC, and TLBIMC were identified in a thermophilic fungus **Thermomyces lanuginosus**. Based on sequence similarity, they were classified as members of the known kinesin families Unc104/KIF1, KAR3, and BIMC. TLKIF1 was subsequently expressed in Escherichia coli. The expression level was high, and the protein was mostly sol., easy to purify, and enzymically active. TLKIF1 is a monomeric kinesin motor, which in a gliding motility assay displays a robust plus-directed microtubule movement up to 2 .mu.m/s. The discovery of TLKIF1 also demonstrates that a family of kinesin motors not previously found in fungi may in fact be used in this group of organisms.
REFERENCE COUNT: 34
REFERENCE(S):
(1) Altschul, S; Nucleic Acids Res 1997, V25, P3389 CAPLUS
(2) Barton, N; Proc Natl Acad Sci 1996, V93, P1735 CAPLUS
(4) Berg, O; Biochemistry 1998, V37, P6615 CAPLUS
(5) Cherry, J; Nature 1997, V387, P67 CAPLUS
(6) Cohn, S; Methods Cell Biol 1993, V39, P75 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 10:22:27 ON 30 APR 2001)
L8 7 S L6
L9 4 DUP REM L8 (3 DUPLICATES REMOVED)

L9 ANSWER 1 OF 4 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.

ACCESSION NUMBER: 2000400139 EMBASE
TITLE: Continuous intrathecal fluid infusions elevate nerve growth factor levels and prevent functional deficits after spinal cord ischemia.
AUTHOR: Bowes M.; Tuszynski M.H.; Conner J.; Zivin J.A.
CORPORATE SOURCE: M.H. Tuszynski, Departments of Neurosciences, University of California, San Diego, CA 92093-0626, United States. mtuszyns@ucsd.edu
SOURCE: Brain Research, (17 Nov 2000) 883/2 (178-183).
Refs: 37
ISSN: 0006-8993 CODEN: BRREAP
PUBLISHER IDENT.: S 0006-8993(00)02779-7
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 008 Neurology and Neurosurgery
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Continuous intracerebroventricular or intrathecal infusions of neurotrophic factors have been reported to prevent neuronal degeneration, stimulate axonal sprouting and ameliorate behavioral deficits in various models of CNS injury and aging. In the present study, the ability of intrathecal infusions of recombinant human nerve growth factor (NGF) to reduce functional deficits following spinal cord ischemia was investigated. Adult rabbits underwent intrathecal cannulation and continuous infusions of either 300 .mu.g/ml recombinant human NGF or artificial CSF (vehicle) at a rate of 143 .mu.l/day for 7 days prior to induction of spinal cord ischemia. Continuous infusions were maintained after induction of ischemia. Four days later, both NGF-treated and vehicle-infused subjects showed a significant amelioration of functional **motor** deficits compared to lesioned, non-infused subjects ($P < 0.05$). The average duration of tolerated ischemia increased from 23.4 .+-. 1.8 min in lesioned, non-infused subjects to 35.5 .+-. 3.1 min in lesioned, artificial CSF-infused subjects and 35.6 .+-. 4.7 min in NGF-infused subjects (mean .+-. S.E.M.). Significantly elevated NGF **protein** levels were attained within the spinal cords of both NGF-treated subjects and artificial CSF-infused subjects, although levels were substantially higher in NGF-treated subjects (9.8 .+-. 3.8 ng/g in NGF-infused vs. 2.0 .+-. 0.4 ng/g in vehicle-infused and only 0.4 .+-. 0.2 ng/g in lesioned, non-infused animals). These findings indicate that the process of intrathecal cannulation and fluid infusion elicits alterations in the spinal cord environment that are neuroprotective, including spontaneous elevations in NGF levels. (C) 2000 Elsevier Science B.V.

ACCESSION NUMBER: 1999-493950 [41] WPIDS
DOC. NO. NON-CPI: N1999-367948
DOC. NO. CPI: C1999-144724
TITLE: New nucleic acid encoding microtubule **motor protein**, used for diagnosis of fungal infection and neurodegenerative disease.
DERWENT CLASS: B04 D16 S03
INVENTOR(S): GOLDSTEIN, L S B; SAKOWICZ, R
PATENT ASSIGNEE(S): (REGC) UNIV CALIFORNIA
COUNTRY COUNT: 84
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9937659	A1	19990729	(199941)*	EN	74

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW

AU 9924648	A	19990809	(200001)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9937659	A1	WO 1999-US1355	19990122
AU 9924648	A	AU 1999-24648	19990122

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9924648	A	Based on	WO 9937659

PRIORITY APPLN. INFO: US 1998-72361 19980123
AN 1999-493950 [41] WPIDS
AB WO 9937659 A UPAB: 19991011
NOVELTY - New isolated nucleic acid (I) encoding a microtubule **motor protein** (MMP) that:
(i) has plus end-directed microtubule motor activity and
(ii) a tail domain with over 60% amino acid (aa) sequence identity with a **TL** gamma tail, as measured with a sequence comparison algorithm.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(1) expression vector containing (I);

(2) host cells transfected with this vector;
(3) isolated MMP;
(4) antibody (Ab) that binds specifically to **TL** gamma ;
(5) diagnosing hyphal fungal infections by detecting **TL** gamma ;
(6) screening for modulators of **TL** gamma ;
(7) kit for method (6);
(8) computer systems for screening for mutations in MMP genes and for identifying the three-dimensional structure of MMP; and
(9) method for identifying agents that bind to **TL** gamma , or its stalk, motor or tail domains.
ACTIVITY - Antimycotic; neuroprotective; fungicidal.
MECHANISM OF ACTION - MMP are involved in organelle, i.e. hyphal and axonal, transport.
USE - Detection of MMP (at **protein** or nucleic acid levels) is used to diagnose infection by hyphal fungi, in humans, animals or plants. MMP are also used to screen for specific modulators (potentially useful for treating hyphal fungal infections, in plants or animals, and diseases caused by mutated **TL** gamma , e.g. neurodegeneration involving anterograde axonal transport, such as Alzheimer's, Parkinson's or Huntington's diseases or amyotrophic lateral sclerosis); or to raise specific antibodies (Ab), useful as immunoassay reagents. (I), or its fragments, are used to identify polymorphic variants, alleles, homologs etc. of **TL** gamma , or other **motor proteins**, by hybridization or computer-assisted sequence comparison; to generate **protein** structural models; for recombinant production of MMP; as antisense molecules; for producing transgenic or knockout animals (used in screening for, and development of, therapeutic agents) and in gene therapy.
ADVANTAGE - Detection of **TL** gamma allows differentiation between hyphal and non-hyphal fungal infections.
Dwg.0/0

L9 ANSWER 3 OF 4 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1999:269269 BIOSIS
DOCUMENT NUMBER: PREV199900269269
TITLE: Single-molecule behavior of monomeric and heteromeric kinesins.
AUTHOR(S): Pierce, Daniel W. (1); Hom-Booher, Nora; Otsuka, Anthony J.; Vale, Ronald D.
CORPORATE SOURCE: (1) Department of Chemistry and Biochemistry, Montana State University, 108 Gaines Hall, Bozeman, MT, 59717 USA
SOURCE: Biochemistry, (April 27, 1999) Vol. 38, No. 17, pp. 5412-5421.
ISSN: 0006-2960.

DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Conventional kinesin is capable of long-range, processive movement along microtubules, a property that has been assumed to be important for its role in membrane transport. Here we have investigated whether the Caenorhabditis elegans monomeric kinesin unc104 and the sea urchin heteromeric kinesin KRP85/95, two other members of the kinesin superfamily that function in membrane transport, are also processive. Both **motors** were fused to green fluorescent **protein**, and the fusion **proteins** were tested for processive ability using a single-molecule fluorescence imaging microscope. Neither unc104-GFP nor KRP85/95-GFP exhibited processive movement (detection limit apprx40 nm), although both **motors** were functional in multiple **motor** microtubule gliding assays (v = 1760 +- 540 and 202 +- 37 nm/s, respectively). Moreover, the ATP turnover rates (5.5 and 3.1 ATPs per **motor** domain per second, respectively) are too low to give rise to the observed microtubule gliding velocities, if only a single **motor** were driving transport with an 8 nm step per ATPase cycle. Instead, the results suggest that these **motors** have low duty cycles and that high processivity may not be required for efficient vesicle transport. Conventional kinesin's unusual processivity may be required for efficient transport of **protein** complexes that cannot carry multiple **motors**.

L9 ANSWER 4 OF 4 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2000095847 MEDLINE
DOCUMENT NUMBER: 20095847 PubMed ID: 10631986
TITLE: Cloning and expression of kinesins from the thermophilic fungus **Thermomyces lanuginosus**.
AUTHOR: Sakowicz R; Farlow S; Goldstein L S
CORPORATE SOURCE: Howard Hughes Medical Institute, Department of Cellular and Molecular Medicine, School of Medicine, University of California, San Diego, La Jolla 92093-0683, USA.
CONTRACT NUMBER: GM35252 (NIGMS)
SOURCE: PROTEIN SCIENCE, (1999 Dec) 8 (12) 2705-10. Journal code: BNW; 9211750. ISSN: 0961-8368.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200002
ENTRY DATE: Entered STN: 20000229
Last Updated on STN: 20000229
Entered Medline: 20000214

AB The **motor** domain regions of three novel members of the kinesin superfamily TLKIF1, TLKIFC, and TLBIMC were identified in a thermophilic fungus **Thermomyces lanuginosus**. Based on sequence similarity, they were classified as members of the known kinesin families Unc104/KIF1, KAR3, and BIMC. TLKIF1 was subsequently expressed in Escherichia coli. The expression level was high, and the **protein** was mostly soluble, easy to purify, and enzymatically active. TLKIF1 is a monomeric kinesin **motor**, which in a gliding motility assay displays a robust plus-directed microtubule movement up to 2 microm/s. The discovery of TLKIF1 also demonstrates that a family of kinesin **motors** not previously found in fungi may in fact be used in this group of organisms.

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FILE 'HOME' ENTERED AT 10:24:32 ON 30 APR 2001